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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/916,210

07/27/2001

Yang-Lim Choi

Q61834

6848

7590 01/04/2007
SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER

AN, SHAWN S

ART UNIT

PAPER NUMBER

2621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 09/916,210	Applicant(s) CHOI ET AL.	
	Examiner Shawn S. An	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Reopen Prosecution

1. In view of the appeal brief filed on 9/29/2006, and the appeal conference held with the supervisors, Chris Kelley, Mehrdad Dastouri, and the Examiner, Shawn An, PROSECUTION IS HERE BY REOPENED. The Office Action is set forth below.

To avoid abandonment of the application, Appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and the appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then Appellant must pay the difference between the increased fees and the amount previously paid.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavlovic et al (6,591,146 B1) in view of Aggarwal et al (IEEE, Human Motion Analysis)

Regarding claim 9, Pavlovic et al discloses an object activity modeling method comprising the steps of:

obtaining feature vectors by motion estimation for video frames (col. 21, lines 17-25; col. 22, lines 13-49);

determining a state, to which each frame belongs, using the obtained feature vectors (col. 22, lines 13-41); and

determining an activity model using a transition matrix for the determined state, as the recognized activity (col. 29, lines 1-31).

Pavlovic et al does not specifically disclose a model, *which maximizes the probability between activity models and video frame provided from a given activity model dictionary*.

However, Aggarwal et al teaches human motion analysis comprising Hidden Markov Model including maximizing the probability between activity models and video frame provided from a given activity model dictionary (the parallel network) (see 4.2 State-Space Approaches). Note that Pavlovic et al also teaches Hidden Markov Model (abs; Fig. 6).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an object activity modeling method as taught by Pavlovic et al to incorporate Aggarwal et al's teaching as above so as to determine the activity model, which maximizes the probability between activity models and video frame provided from the given activity model dictionary using the transition matrix for the determined state, as the recognized activity, as an efficient way to model an object activity (motion).

Regarding claim 10, Pavlovic et al discloses finding an activity model from the given activity model dictionary (col. 5, lines 34-47) and feature vectors of input frames, Z_t (Eq. 18) (col. 22, lines 22-41). Furthermore Aggarwal et al teaches human motion analysis comprising Hidden Markov Model including maximizing the probability between activity models and video frame provided from a given activity model dictionary as discussed above.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an object activity modeling method as taught by Pavlovic et al to incorporate Aggarwal et al's teaching as above so as to find an activity model, which

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maximizes probability from the given activity model dictionary, where T is a positive integer indicating the number of frames forming video sequences, wherein Z_t are feature vectors of T -th frame, and E = number of state models as a more efficient method for finding an activity model.

Allowable Subject Matter

4. Claim 11 is objected to as being dependent upon a rejected base claim 1, but would be allowable: if claim 11 is rewritten in independent form including all of the limitations of the base claim 9 and any intervening claims.

Dependent claim 11 recites the novel features, wherein the transition matrix is obtained by using an expectation maximization algorithm based on the observation symbol probability $\{b_j(\cdot)\}$ corresponding to scene j in the training process.

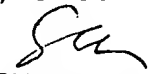
Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn S An* whose telephone number is 571-272-7324.

6. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


SHAWN AN
PRIMARY EXAMINER

12/24/06